

CLAIMS

1. A self-organizing network comprising:

a plurality of nodes;

5 a plurality of links interconnecting neighbouring ones of said nodes;

each of said nodes operable to maintain information about each of said nodes that are within first portion of said nodes, said information including:

a first identity of another one of said nodes within said first portion;

10 for each first identity, a second identity representing a neighbouring node that is a desired step to reach the said another one of said nodes respective to said first identity;

each of said nodes operable to maintain a third identity representing a neighbouring node that is a desired step to send a request for information about
15 said nodes in a second portion of said nodes that are not included in said first portion.

2. The network according to claim 1 wherein said third identity is determined based on which of said neighbouring nodes most frequently appears in each said second identity.

3. The network of claim 1 or 2 wherein each of said nodes is operable to exchange
20 said information with its neighbouring nodes.

4. The network of any of claims 1, 2 and 3 wherein each link has a set of service characteristics such that any path between two of said nodes has a cumulative set of service characteristics.

5. The network of claim 4 wherein said information includes said cumulative set; and
25 said desired step associated with said second identity is based on which of said paths has a desired cumulative set of service characteristics.

6. The network of claims 4 or 5 wherein said service characteristics include at least one of bandwidth, latency and bit error rate.

7. The network of any of claims 1-6 wherein said nodes are at least one of computers, telephones, sensors, personal digital assistants.
8. The network of any of claim 1-7 wherein said links are based on at least one of wired and wireless connections.
- 5 9. The network of any of claims 1-8 wherein a network core is formed between neighbouring nodes that determine each other is a desired step to locate said nodes within said second portion.
10. The network of claim 9 wherein each said node is operable to deliver instructions other nodes between said core and itself to maintain information about itself.
- 10 11. The network of claim 10 wherein said information includes, for each said first identity, a value representing a distance to data marked stream for said node associated with said first identity.
12. The network of claim 11 wherein nodes associated with said first identity are ranked in an ascending order increasing according to said distance and said instructions
15 are delivered to those nodes according to said rank.
13. A self-organizing network comprising at least 2,000 nodes interconnected by a plurality of links.
14. A self-organizing network comprising at least 5,000 nodes interconnected by a plurality of links.
- 20 15. A self-organizing network comprising at least 10,000 nodes interconnected by a plurality of links.
16. A self-organizing network comprising at least 100,000 nodes interconnected by a plurality of links.
- 25 17. A node for use in a self-organizing network having a plurality of other nodes and a plurality of links interconnecting neighbouring ones of said nodes; said node comprising:
a computing apparatus operable to maintain information about each of said other nodes that are within first portion of all of said other nodes, said information including:
a first identity of another one of said nodes within said first portion;

for each said first identity, a second identity representing a neighbouring node that is a desired step to reach the said another one of said nodes respective to said first identity;

5 said computing apparatus further operable to maintain a third identity representing a neighbouring node that is a desired step to send a request for information about said nodes in a second portion of said nodes that are not included in said first portion.

18. A computer readable medium for storing a set of programming instructions for execution on a node forming part of a self-organizing network having a plurality of other
10 nodes and a plurality of links interconnecting neighbouring ones of said nodes; said programming instructions for causing a computing apparatus within said node to maintain information about each of said other nodes that are within first portion of all of said other nodes, said information including:

 a first identity of another one of said nodes within said first portion;

15 for each said first identity, a second identity representing a neighbouring node that is a desired step to reach the said another one of said nodes respective to said first identity;

 said programming instructions for further causing said computing apparatus to maintain a third identity representing a neighbouring node that is a desired step to send a request for
20 information about said nodes in a second portion of said nodes that are not included in said first portion.